

Claims

1. A method of increasing the HDL concentration and the HDL/LDL concentration ratio in human serum by providing a balance between a sufficient and required proportion of cholesterol-free saturated fatty acids in the daily dietary fat of said human and a sufficient and required, but not excessive proportion of polyunsaturated fatty acids comprising linoleic acid in said dietary fat, while the remaining proportion of fatty acids and energy from said dietary fat is provided by monounsaturated fatty acids comprising oleic acid, said method comprising: ingesting said dietary fat, wherein said saturated fatty acids selected from the group comprising palmitic acid, myristic acid, lauric acid and combinations thereof must constitute between 20% and 40% by weight of the daily dietary fat based upon said dietary fat accounting for 30% of the total dietary energy consumption, and wherein said linoleic acid must constitute between 15% and 40% by weight of said dietary fat, whereby the required proportional intake of said polyunsaturated fatty acids enhances the formation of HDL from VLDL and/or decreases the clearance of HDL, while an excessive proportional intake of said polyunsaturated fatty acids and said monounsaturated fatty acids is avoided to assure a sufficient dietary availability of said saturated fatty

acids which are required for sufficient VLDL synthesis and HDL production.

2. The method of claim 1, wherein said cholesterol-free saturated fatty acids comprise palmitic acid.

5 3. The method of claim 1, wherein said cholesterol-free saturated fatty acids comprise lauric acid and myristic acid.

4. The method of claim 1, wherein the proportion of monounsaturated fatty acids in the daily dietary fat is
10 between 20% and 50% oleic acid and no greater than 1% elaidic acid, or other unnatural trans fatty acids by weight.

5. The method of claim 1, wherein said polyunsaturated fatty acids comprise linoleic acid and at
15 least one other polyunsaturated fatty acid selected from the group including α -linolenic acid, eicosapentenoic acid (EPA), and docosahexenoic acid (DHA).

6. The method of claim 1, wherein the proportion of saturated fatty acids in the daily dietary fat is at least
20 20% by weight and said dietary fat comprises less than 5% by weight stearic acid.

7. A method of decreasing the LDL concentration in human serum by providing saturated fatty acids in the daily diet in a proportion between 20% and 40% by weight of the daily dietary fat based upon said dietary fat accounting for 30% of the total dietary energy consumption, and maintaining a proportion of polyunsaturated fatty acids comprising linoleic acid in the daily diet at the expense of monounsaturated fatty acids comprising oleic acid and/or elaidic acid, wherein said linoleic acid constitutes between 15% and 40% by weight of said dietary fat, whereby removal of plasma VLDL remnants and LDL is maximized, and the production of LDL is reduced.

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8. A method of increasing the HDL and stabilizing or decreasing the LDL concentration in human serum by providing saturated fatty acids in the daily diet in a proportion between 20% and 40% by weight of the daily dietary fat based upon said dietary fat accounting for 30% of the total dietary energy consumption, whereby the production of VLDL, as the HDL precursor, is adequately sustained and is not rate limiting in HDL biosynthesis, and maintaining a proportion of polyunsaturated fatty acids comprising linoleic acid in the daily diet at the expense of monounsaturated fatty acids comprising oleic acid and/or elaidic acid, wherein said linoleic acid constitutes between 15% and 40% by weight of said dietary

fat, whereby VLDL catabolism to HDL is facilitated and hepatic clearance of VLDL remnants and LDL is enhanced.

9. A method of increasing the HDL concentration and the HDL/LDL concentration ratio in human serum by the dietary consumption of foods prepared using a cholesterol-free single fat or blended fat composition containing a ratio of one part by weight polyunsaturated fatty acids to at least one part by weight saturated fatty acids, wherein said single fat or blended fat composition comprises linoleic acid and at least one saturated fatty acid selected from the group including lauric acid, myristic acid, and palmitic acid, said linoleic acid constituting between 15% by weight and 40% by weight of said composition and said saturated fatty acid constituting between 20% and 40% by weight of said composition, whereby adequate dietary levels of saturated fatty acids in the absence of cholesterol stimulate VLDL synthesis and secretion by the liver, and adequate dietary levels of linoleic acid enhance LPL activity and generation of HDL from VLDL while stimulating the removal of VLDL remnants and LDL and concomitantly decreasing CETP activity and HDL catabolism.

10. The method of claim 1,7,8, or 9, wherein the food source of said saturated fatty acids comprises at least one vegetable fat selected from the group including palm fat, coconut fat and cocoa butter.

11. The method of claim 10, wherein said palm fat is selected from the group including palm oil, palm olein, and palm kernel oil.

12. The method of claim 1, 7, 8, or 9, wherein the food source of said polyunsaturated fatty acids comprises at least one vegetable oil selected from the group including corn oil, sunflower oil, safflower oil, soybean oil, cottonseed oil, canola oil, and peanut oil.

13. The method of claim 1, wherein said polyunsaturated fatty acids comprise linoleic acid and linolenic acid.

14. The method of claim 13, wherein said linolenic acid is contributed by soybean oil, canola oil, edible flax seed oil, and/or perrilla seed oil.

15. The method of claim 9, wherein providing within said cholesterol free blended fat composition, a proportion of at least one part by weight cholesterol-free saturated fat to one part by weight polyunsaturated fat, stabilizes the polyunsaturated fat against oxidation.

16. The method of claim 15, wherein the oxidation-resistance of said cholesterol free blended fat composition upon heating to a temperature of 100°C or greater in air is increased by at least 25% compared to

the oxidation resistance of the polyunsaturated fat when heated separately from said blended fat composition.

17. The method of claim 1,7, or 8, wherein essentially all of said dietary fat is provided in a
5 nutritionally balanced liquid and/or solid formula diet in which said dietary fat accounts for between 15% and 45% of the total dietary energy consumption.

18. The method of claim 17, wherein said dietary fat accounts for between 20% and 30% of the total dietary
10 energy consumption.

19. The method of claim 9, wherein in place of said dietary consumption of foods prepared using a single fat or blended fat composition, is substituted the dietary
15 consumption of a nutritionally balanced liquid formula diet prepared using a single fat or a blended fat composition in which the total fat content therein accounts for between 15% and 45% of the total dietary energy consumption.

20. The method of claim 1,7,8, or 9, wherein said daily dietary fat or said foods contain a blended fat composition comprising one part by weight of at least one polyunsaturated vegetable oil selected from the group including corn oil, sunflower oil, safflower oil, soybean
25 oil, cottonseed oil, canola oil, and peanut oil blended

with at least one part by weight of vegetable fat comprising saturated fatty acids.

21. The method of claim 20, wherein said vegetable fat is selected from the group including palm fat, coconut fat and cocoa butter.

22. The method of claim 21, wherein said palm fat is selected from the group including palm oil, palm olein, and palm kernel oil.

23. A method of increasing the HDL concentration and the HDL/LDL concentration ratio in human serum by the dietary consumption of foods prepared using at least one modified fat selected from the group including a chemically interesterified fat, an enzymatically interesterified fat, and a synthetic fat, wherein said modified fat comprises one part by weight polyunsaturated fatty acids and at least one part by weight saturated fatty acids selected from the group including lauric acid, myristic acid, and palmitic acid, said polyunsaturated fatty acids constituting between 15% by weight and 40% by weight of said modified fat and said saturated fatty acids constituting between 20% and 40% by weight of said modified fat, whereby adequate dietary levels of saturated fatty acids in the absence of cholesterol stimulate VLDL synthesis and secretion by the liver, and adequate dietary levels of polyunsaturated fatty acids enhance LPL activity

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and generation of HDL from VLDL while stimulating the removal of VLDL remnants and LDL and concomitantly decreasing CETP activity and HDL catabolism.

24. The method of claim 1,7,8,9, or 23, wherein the
5 weight ratio of said saturated fatty acids to polyunsaturated fatty acids included in said dietary fat, modified fat, or blended fat composition ranges from 0.5:1.0 to 2.0:1.0.

25. The method of claim 24, wherein said weight ratio
10 is approximately 1 to 1.

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26. A liquid and/or solid dietary composition suitable for human or animal ingestion for increasing the HDL concentration and the HDL/LDL concentration ratio in the blood serum, wherein essentially all of the dietary
15 fat which accounts for between 15% and 45% of the total dietary energy in said liquid formula diet, is provided by a single fat or blended fat composition containing one part by weight polyunsaturated fat and at least one part by weight cholesterol-free saturated fat, wherein said
20 single fat or a blended fat composition comprises linoleic acid and at least one saturated fatty acid selected from the group including lauric acid, myristic acid, and palmitic acid, said linoleic acid constituting between 15% by weight and 40% by weight of said composition and said

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saturated fatty acid constituting between 20% and 40% by weight of said composition.

27. The dietary composition of claim 26, wherein said dietary fat accounts for between 20% and 30% of the total dietary energy in said liquid formula diet.

28. The dietary composition of claim 26, wherein said saturated fatty acid is predominantly palmitic acid.

29. The method of claim 1, 5, or 13, wherein a reduction in cardiac arrhythmia can accompany the increase in HDL concentration and the increase in HDL/LDL concentration ratio.

30. The method of claim 1, 7, 8 or 9, wherein the food source for both said saturated and said polyunsaturated fatty acids comprises a genetically selected or engineered vegetable oil-bearing single plant species.

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